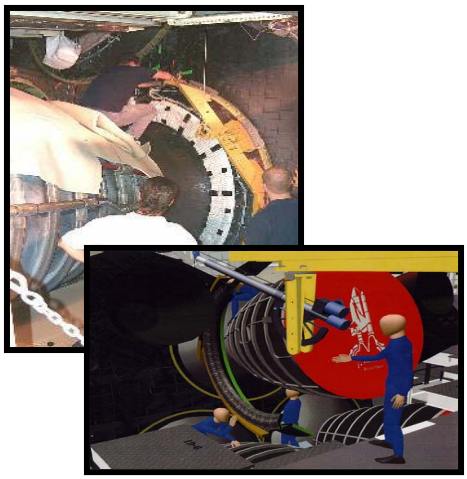
Innovative Partnership Program

Toolkit for Enabling Adaptive Modeling and Simulation (TEAMS+)

Success Story



Description of Innovation

Knowledge Based Systems, Inc. (KBSI), an analysis, modeling and systems software development company out of College Station, Texas, has developed the Tool Kit for Enabling Adaptive Modeling and Simulation (TEAMS). KBSI received funding through the NASA Small Business Innovation Research (SBIR) program at Kennedy Space Center. TEAMS provides space transportation system designers a knowledge-based infrastructure for quickly and easily developing, maintaining, and reconfiguring operations analysis models. TEAMS applications are: (i) a collaborative process modeling and process knowledge management toolkit; and (ii) an operations planning and schedule analysis application. TEAMS benefits include: (i) ability to affordably explore a large number of space transportation system decision alternatives; (ii) higher quality space transportation system designs; and (iii) reduced spaceport development, operations, and maintenance costs.

Value Back to NASA

The tool is intended for use by NASA's Shuttle Processing space transportation system designers and analysts. NASA awarded KBSI a Phase III contract for $195,000 to develop an operations cost modeling tool for NASA by adapting the innovative methods and tools produced under the Phase II TEAMS project. The goal is to provide a capability to allow for operations and life cycle modeling and analysis for current and future space transportation systems. KBSI was recently awarded a follow on contract of $220,000 from United Space Alliance (USA) to the TEAMS Phase II SBIR project to harden and transition the TEAMS Phase II WorkSim-based process analysis and scheduling tools. The anticipated product will be a validated and robust simulation-based process analysis toolkit for use by USA. The enhancements to the TEAMS WorkSim tool that will be accomplished in this project are its ability to model and simulate OPF-unique process constraints. The tool is currently being validated with current and historical shuttle operational process data. The tool is flexible enough to be used for operational analysis of other (current and future) space vehicle ground processes. The main benefit of the effort is the ability to effectively perform detailed stochastic and predictive process "what if" analysis and experimentation.

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Partnership Contributions

The development of the TEAMS+ technology by KBSI was primarily performed at their College Station, Texas office in 2000 to 2005. It was funded by the NASA SBIR program at Kennedy Space Center. Follow on commercialization and technology application efforts are continuing with several different government and industry customers. Ongoing commercialization and technology transfer activities are being supported through a combination of internal (KBSI) and external funding sources.

ITTP Role

Dr. Perakath Benjamin of Knowledge Based Systems, Inc., applied for and was awarded a Phase I and Phase II SBIR Contract through Kennedy Space Center´s SBIR/STTR Program to address NASA's need for a tool for investment decision making support and for knowledge capture. These programs are managed by NASA's Chuck Griffin and supported by ASRC Aerospace's Project Specialist, Jennifer Van Pelt.

Other References, Sources

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